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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/708,668	03/18/2004	Jianbo Lu	81095818FGT1902	2667
28549	7590	03/10/2006	EXAMINER	
KEVIN G. MIERZWA ARTZ & ARTZ, P.C. 28333 TELEGRAPH ROAD, SUITE 250 SOUTHFIELD, MI 48034			ARCE DIAZ, MARLON A	
			ART UNIT	PAPER NUMBER
			3611	

DATE MAILED: 03/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/708,668	Applicant(s) LU ET AL.	
	Examiner Marlon A. Arce-Diaz	Art Unit 3611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 December 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-61 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-32, 34-36, 38-44, 46, 47, 49-51 and 53-60 is/are rejected.
- 7) ☒ Claim(s) 33, 37, 45, 48, 52 and 61 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>7/5/05</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed on amendment filed on 12/14/05 have been fully considered but they are not persuasive. Concerning applicant comments on the torque detector (S2), it can be seen on Column 4 line 4-7 (in Shimizu) where it states that the torque detecting means (S2) detects the steering torque applied to the steering wheel (1), thereby, it can be said that the torque detector does indeed determine the steering direction. Regarding applicant comments on the angular rate; Shimizu discloses a control means (22b) which, calculates a deviation $E(=\theta_{ref}-\theta)$, θ being the steering angle) mentioned in column 4 lines 53-58; it can be said that said control means (22b) in conjunction with the steering angle detecting means (S1) detect an angular rate.

Regarding applicant comments on applying the brake to help steer the vehicle; Shimizu's invention relates to an automatic steering and braking while parking apparatus, said automatic steering apparatus is able to steer while maintaining a balanced braking force as mentioned in the abstract discloses by Shimizu.

Regarding applicant comments on claim 29 and 53, it is obvious to say that in Hidaka's invention that there is two torques being applied to two different crawlers/wheels, when one crawler/wheel is driven at a different speed than the other one (Paragraph 0007) when making a turn. Regarding applicant comments on claim 38, it is obvious to say that when the driver selects a mode in Shimizu's invention, he or she is in fact sending a signal to the controller (22), which in turn sends a signal to the

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steering actuator (7), said steering actuator steers the front wheels and by steering the front wheels the turning radius is changed.

Regarding applicant comments on claim 44, Watson covers the transfer case mode; said transfer case mode has a driver selectable switch (188) as mentioned on the prior action, said driver selectable switch selects a 4WD or 2WD configuration; Watson does indeed cover claim 44.

The rejection 35 USC 102, and the rejection 35 USC 103 are maintained and will be repeated below. The claim rejection 35 USC 112 has been removed.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1,2,11,38-41 are rejected under 35 U.S.C. 102(b) as being anticipated by Shimizu (US Patent No 6,018,692). Shimizu discloses an automatic steering apparatus to steer the front wheels of a vehicle comprising of a controller (22), adapted to receive signals from steering angle detecting means (S1) for detecting the steering angle, a steering detecting means (S2) for detecting wheel direction and torque since it is inherent that when the amount of torque detected determines the direction of the wheel; a steering actuator (7) based on the steering torque, an automatic parking operation which enables a brake force generated due to at least one factor other than the braking input means (column 1 line 59-67). A desirable speed range of 3km/hr to 10 km/hr is

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determined to allow the parking operation to start (column 5, line 10-25). An automatic parking starting switch (S8) is operated when the automatic operation is started in the parking mode selected by the mode-selecting switch (S7). When the mode-selecting switch S7 is set to parking mode it sends a signal so that the automatic steering operation is carried out while the braking force detecting means (22a) of controller (22) detects the net braking force applied to any or all the brakes in the vehicle, said braking force is predetermined by the driver so the automatic parking can carry on at the suggested speed. It is also noted that the use of the apparatus disclosed above would result in the method to be perform.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 8-10,29-32,34,35,38-43,53-58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimizu (US Patent No 6,018,692) in view of Hidaka (US Pub. 2002/0005302). Shimizu discloses an automatic steering apparatus mentioned above. Shimizu fails to mention the use of brake steer to turn the vehicle in a smaller radius and increasing the torque on a specific wheel to allow it to turn while decreasing it in another. Hidaka discloses a working vehicle. The working vehicle has a pair of right

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and left crawlers (2), a speed change apparatus (25) for imparting traction force to the crawlers, a speed change lever (73) operable to control the speed change apparatus so as to alter running speed of the vehicle in a step-less manner. The vehicle further has a steering apparatus (28) and a steering wheel (19) operable to control the steering apparatus so as to alter difference in the running speeds between the crawlers (2). The running speed generally determined for each crawler by the speed change lever (73) can be decreased voluntarily and proportionally to an operated angle of the steering wheel (19). Both crawlers can be control to spin at different speeds so the vehicle can turn either right or left. It would be obvious for someone skilled in the art to modify Shimizu automatic steering apparatus to include a control in the steering wheel to handle the steering apparatus so as to change the speed between the wheels and therefore, reducing the turning radius. Anti-lock brakes are now included in most cars if not all so, it is inherent to include it on motorized vehicles. It is also noted that the use of the apparatus disclosed above would result in the method to be perform.

6. Claims 29,36,44,46,47,49-51,59,60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimizu (US Patent No 6,018,692) in view of Hidaka (US Pub. 2002/0005302) as applied to claim 38 above, and further in view of Watson (US Pub. 2001/0042652). Shimizu discloses an automatic steering apparatus mentioned above, Hidaka discloses a working vehicle mentioned above. Shimizu and Hidaka fail to disclose the use of a transfer case to change from 4WD to 2WD. Watson discloses an on demand vehicle drive system comprising of a driver selectable switch (188), said driver switch defines different positions being either a 4WD or 2WD (paragraph

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0077,0078), an output shaft / differential (36) to connect the front transmission to the rear wheels. It would be obvious for a person of ordinary skill in the art to modify Shimizu automatic steering to include an output shaft for the rear wheels to make the vehicle operable under 4WD mode by activating the driver selectable switch. It is also noted that the use of the apparatus disclosed above would result in the method to be perform.

Allowable Subject Matter

7. Claims 33,37,45,48,52,61 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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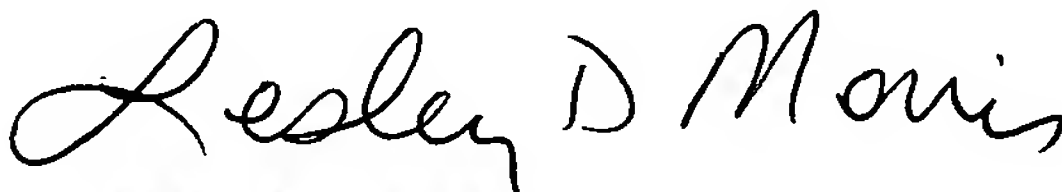
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marlon A. Arce-Diaz whose telephone number is (571) 272-1341. The examiner can normally be reached on Mon-Fri 8:00 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lesley Morris can be reached on (571) 272-6651. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Marlon Arce-Diaz

MAA


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ASSISTANT PATENT EXAMINER
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